**Digital Image Steganography with Encryption Based on Rubik’s Cube Principle**

**ABSTRACT**

Information exchange between sender and receiver becomes very fast and easy. The quality of message transmission, especially the security, must be noticed. Data hiding is important for securing message. It can be done using cryptography and steganography. This paper describes the result of investigation on image steganography system using secret grayscale image and RGB image as a cover. Before the secret image is embedded into the cover, the encryption process is done to provide a more reliable security. The encryption method used is based on rubik’s cube principle, by moving the pixels position in a digital image. The steganography uses LSB substitution method that works in spatial domain. The objective of this scheme is to obtain a high quality hidden secret image in order to keep message secret. Finally, effectiveness of the proposed scheme is tested using histogram analysis, Avalanche effect, Brute-Force attack, visual attack, statistical attack of Chi-Square analysis, and size and embedding position differences analysis.

***Keywords—***steganography; LSB; encryption; rubik’s cube.